Title: Semi- and non-parametric inference for K stochastically ordered distributions

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Abstract:

Inference for stochastically ordered populations is a common and important problem in statistical practice. It arises in both the analysis of planned experiments and observational studies. In this talk I will discuss both semi-parametric and non-parametric approaches to the K sample problem. In particular a new semi-parametric framework, based on the density ratio model, for estimation and testing under arbitrary order restrictions is developed. The method works well for both large and small sample sizes and can be naturally extended to deal with vector valued outcomes. Real data examples are provided. In addition new non-parametric testing procedures based on a maximally selected chi-bar statistic are developed for a similar class of problems and illustrated using three important examples.